

## **AMENDMENTS TO THE CLAIMS**

This listing of the claims replaces all prior versions, and listings, of claims in the application:

### **LISTING OF CLAIMS**

1. (Currently amended) An adapter for mounting any one of a blowout preventer, a high pressure valve, and a well stimulation tool to a double-locking casing mandrel of an independent screwed wellhead, the adapter comprising:

an adapter pin comprising a hollow cylindrical body having a central passage, a top nipple section with a top pin thread, and a bottom nipple section with a bottom pin thread, the bottom nipple section being received in an axial passage of the double-locking casing mandrel and the bottom pin thread engaging a top end box thread in a central passage of the double-locking casing mandrel; and

one of:

a lockdown flange comprising a top end to which the blowout preventer, the high pressure valve, or the well stimulation tool can be mounted; the lockdown flange including an axial passage having a box-threaded bottom end for receiving the top nipple section of the adapter pin and threadedly engaging the top pin thread thereof; and a lockdown nut supported by an annular shoulder below the top end, the lockdown nut having a box thread for engaging a pin thread on ~~the~~ an outer wall of a top end of the double-locking casing mandrel; and

a retainer flange for providing a mounting surface to which the any one of the blowout preventer, high pressure valve, and well stimulation tool can be mounted, the retainer flange comprising an annular flange with an axial passageway that is box-threaded for engaging a pin thread on a top end of the double-locking casing mandrel.

2. **(Currently amended)** An adapter for mounting any one of a blowout preventer, a high pressure valve, and a well stimulation tool to a double-locking casing mandrel of an independent screwed wellhead, the adapter comprising:
  - an adapter pin comprising a hollow cylindrical body having a central passage, a top nipple section with a pin-threaded top end for connection to the blowout preventer, the high pressure valve, or the well stimulation tool, and a bottom nipple section received in an axial passage in the double-locking casing mandrel with a pin-threaded bottom end for connection to a top box thread in ~~a central~~the axial passage of the double-locking casing mandrel; and
  - a retainer flange comprising an annular flange having a top surface to which the any one of the blowout preventer, the high pressure valve, and the well stimulation tool can be mounted, and a box-threaded axial passage for engaging a pin thread on an outer wall of a top end of the double-locking casing mandrel.
3. **(Currently amended)** The adapter as claimed in claim 2 wherein the top nipple section of the adapter pin comprises a sealing nipple located between above a pin thread on the pin-threaded top end and bottom pin threads on of the adapter pin.
4. **(Currently amended)** The adapter as claimed in claim 3 wherein the sealing nipple comprises a smooth, cylindrical outer surface that on a top end of the top nipple section, and the cylindrical outer surface mates with O-rings retained in grooves in a central passage through of the one of the blowout preventer, the high pressure valve and the well stimulation tool.

5. **(Currently amended)** The adapter as claimed in claim 2 wherein the bottom nipple section of the adapter pin comprises a sealing nipple located between the pin-threaded top end and the pin-threaded bottom end ~~pin threads on of~~ the adapter pin.
6. **(Currently amended)** The adapter as claimed in claim 5 wherein the sealing nipple comprises a smooth, cylindrical outer surface that mates with O-rings retained in grooves in a ~~central~~the axial passage ~~through of~~ the double-locking casing mandrel.
7. **(Currently amended)** An adapter for mounting any one of a blowout preventer, a high pressure valve, and a well stimulation tool to a double-locking casing mandrel of an independent screwed wellhead, the adapter comprising:
  - an adapter pin comprising a hollow cylindrical body having a central passage, a top nipple section with a pin-threaded top end ~~for connection to the blowout preventer, the high pressure valve, or the well stimulation tool~~, and a bottom nipple section with a pin-threaded bottom end received in an axial passage of the double-locking casing mandrel for connection to a top box thread in a ~~central~~the axial passage of the double-locking casing mandrel; and
  - a lockdown flange having a top end to which any one of the blowout preventer, the high pressure valve, and the well stimulation tool can be mounted; an axial passage having a box-threaded bottom end for receiving the top nipple section of the adapter pin and threadedly engaging the pin-threaded top end ~~pin thread~~ of the adapter pin; and a lockdown nut rotatably supported by an annular shoulder located above the bottom end of the adapter pin, the lockdown nut having a box thread for engaging an external pin thread on an outer wall of a top end of the double-locking casing mandrel.

8. **(Currently amended)** The adapter as claimed in claim 7 wherein the box-threaded bottom end of the axial passage of the lockdown flange further comprises:
- an annular seal retainer for retaining an elastomeric seal that seals against a smooth cylindrical wall of a sealing nipple on ~~a~~ the pin-threaded top end of the adapter pin; and
- a bottom box thread for engaging ~~the top~~ a pin thread on the top nipple section of the adapter pin.
9. **(Currently amended)** The adapter as claimed in claim 8 wherein the bottom nipple section of the adapter pin comprises a sealing nipple located above the ~~bottom pin-threaded bottom end of threads on~~ the adapter pin.
10. **(Currently amended)** The adapter as claimed in claim 9 wherein the sealing nipple comprises a smooth, cylindrical outer surface that seals against O-rings retained in grooves in a secondary seal bore of the double-locking casing mandrel.
11. **(Currently amended)** An adapter for connecting to a double-locking casing mandrel of an independent screwed wellhead, the double-locking casing mandrel having a secondary seal bore of greater diameter than a top end box thread of the double-locking casing mandrel, a top outer wall having a diameter, a pin thread on a the top outer wall, and an annular groove on a top lip between the secondary seal bore and the top outer wall; the adapter comprising:
- an adapter pin comprising a hollow cylindrical body having a central passage, a top nipple section with a pin-threaded top end, and a bottom nipple section with a pin-threaded bottom end received in an axial passage of the double-

locking casing mandrel for connection to a top box thread in the axial passage of the double-locking casing mandrel; and

a retainer flange having threaded bores spaced circumferentially about a box-threaded axial passage for securing any one of a blowout preventer, a high pressure valve, and a well stimulation tool to the retainer flange, wherein the box-threaded axial passage ~~is adapted to engages~~ the pin thread on the top outer wall of the double-locking casing mandrel, the box-threaded axial passage having and is of a diameter equal to the diameter of the top outer wall of the double-locking casing mandrel.

12. **(Currently amended)** A method for stimulating a well equipped with a double-locking casing mandrel of an independent screwed wellhead, comprising:

sealingly connecting to the double-locking casing mandrel an adapter pin that comprises a hollow cylindrical body with an internal diameter at least as large as that of a casing of the well supported by the double-locking casing mandrel, by thread-engaging rotation of a pin-threaded nipple section of the adapter pin with respect to a top end box thread of the double-locking casing mandrel;

threadedly connecting a retainer flange to a pin thread on an outer wall of a top end of the double-locking casing mandrel;

securing well stimulation equipment to the double-locking casing mandrel using a pin-treaded top end of the adapter pin, and box threaded bores in a top surface of the retainer flange for receiving flange bolts; and

stimulating the well by pumping high pressure well stimulation fluids through the well stimulation equipment into the casing of the well.

13. **(Original)** The method as claimed in claim 12 wherein the step of securing comprises rotating any one of a well stimulation tool, a blowout preventer, and a high pressure valve into connection with the pin-threaded top end, and then bolting the one of the well stimulation tool, blowout preventer, and high pressure valve to the top surface of the retainer flange.
14. **(Currently amended)** The method as claimed in claim 12 wherein the step of ~~secur~~ing-securing comprises mounting a blowout preventer to the retainer flange, mounting a blowout preventer protector to the blowout preventer, and stroking the blowout preventer protector through the blowout preventer and into a secondary seal bore of the double-locking casing mandrel prior to stimulating the well.
15. **(Currently amended)** The method as claimed in claim ~~12~~14 wherein the step of securing comprises mounting a high pressure valve above the blowout preventer.
16. **(Original)** The method as claimed in claim 15 further comprising connecting high pressure fracturing lines to the high pressure valve to permit the high pressure well stimulation fluids to be pumped into the casing of the well.
17. **(Currently amended)** A method for stimulating a well equipped with a double-locking casing mandrel of an independent screwed wellhead, comprising:
  - sealingly connecting both the double-locking casing mandrel, and a lockdown flange to an adapter pin that has an internal diameter at least as large as a casing of the well connected to a bottom end of the double-locking casing mandrel;

threadedly connecting a lockdown nut of the lockdown flange supported by an annular shoulder below a top end of the lockdown flange, to a pin thread on an outer wall of a top end of the double-locking casing mandrel;  
mounting well stimulation equipment to a top surface of the lockdown flange; and  
stimulating the well by pumping high pressure well stimulation fluids through the well stimulation equipment and into the casing of the well.

18. **(Original)** The method as claimed in claim 17 wherein mounting the well stimulation equipment comprises mounting any one of a well stimulation tool, a blowout preventer, and a high pressure valve in a sealed connection to the lockdown flange.
19. **(Currently amended)** The method as claimed in claim 18 wherein mounting the well stimulation equipment comprises mounting the blowout preventer, and further comprises mounting a blowout preventer protector and stroking the blowout preventer protector through the blowout preventer, and packing off the blowout preventer protector against a secondary seal bore of the double-locking casing mandrel.
20. **(Original)** The method as claimed in claim 18 wherein mounting the well stimulation equipment comprises mounting the blowout preventer, and further comprises mounting a high pressure valve above the blowout preventer.
21. **(Original)** The method as claimed in claim 17 wherein one of a well stimulation tool and a high pressure valve is mounted above the retainer flange and mounting the well stimulation equipment further comprises:  
mounting a high pressure valve to the one of the well stimulation tool and the blowout preventer; and

connecting high pressure fracturing lines to the high pressure valve to permit the well stimulation fluids to be pumped into the casing of the well.

22. **(Currently amended)** A method for stimulating a well equipped with a double-locking casing mandrel of an independent screwed wellhead, comprising:

threadedly connecting a retainer flange to a pin thread on an outer wall of a top end of the double-locking casing mandrel using an adapter pin comprising a hollow cylindrical body having a central passage, a top nipple section with a pin-threaded top end, and a bottom nipple section with a pin-threaded bottom end received in an axial passage of the double-locking casing mandrel for connection to a top box thread in the axial passage of the double-locking casing mandrel;

mounting well stimulation equipment having an internal diameter at least as large as that of the double-locking casing mandrel, to the a top of the retainer flange in sealed connection with a top of the double-locking casing mandrel and threadedly engaging the well stimulation equipment with a pin thread on the pin-threaded top end of the adapter pin; and

completing the well by pumping high pressure well stimulation fluids through the well stimulation equipment into ~~the~~ a casing of the well.

23. **(Currently amended)** The method as claimed in claim 22 wherein mounting the well stimulation equipment comprises mounting at least one of a well stimulation tool, a blowout preventer (BOP), and a high pressure valve in sealed connection with the top of the double-locking casing mandrel.
24. **(Currently amended)** The method as claimed in claim 22 wherein mounting the well stimulation equipment comprises mounting a blowout preventer to the retainer flange, and mounting a BOP protector to the blowout preventer and



stroking the BOP protector through the blowout preventer, and packing off the BOP protector against a secondary seal bore of the double-locking casing mandrel.

25. **(Original)** The method as claimed in claim 24 wherein mounting the well stimulation equipment further comprises mounting a high pressure valve to a top of the blowout preventer protector.
26. **(Original)** The method as claimed in claim 22 wherein mounting the well stimulation equipment further comprises:  
mounting a high pressure valve to the retainer flange; and  
connecting high pressure fracturing lines to the high pressure valve to permit the well stimulation fluids to be pumped into the casing of the well.